

## REMARKS

This correspondence is responsive to the Office Action dated February 19, 2009. Applicant respectfully traverses the rejections and requests reconsideration and allowance of all pending claims.

### **Discussion of Rejections Under 35 U.S.C. §103**

Claims 1-51 are pending in the application and stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,085,103 to Ramesh et al. (hereinafter Ramesh) and U.S. Patent Application Publication no. 2004/0248519 to Niemela (hereinafter Niemela) and further in view of U.S. Patent Non 5,414,734 to Marchetto et al. (hereinafter Marchetto). Applicant respectfully traverses the rejection and requests reconsideration and allowance of all pending claims.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art reference, or references when combined, must teach or suggest all of the claim limitations.

Applicant contends that a *prima facie* case for obviousness has not been established and respectfully traverses the rejections. In particular, Applicant contends that the references, either alone or in combination, fail to teach or suggest all claimed features. Furthermore, modifying the references in the manner suggested by the Examiner improperly changes the principle of operation of the reference or renders the references unsuitable for its intended purpose.

**Claim 1** recites “[a] method of testing a plurality of wireless subscriber stations.” The method includes “digitally creating in a digital processor a plurality of independently faded signals from the broadcast signal.”

The Examiner concedes that Ramesh does not teach or suggest this claimed feature. *See, Office Action*, at page 2. Instead, the Examiner relies on Niemela for teaching or suggesting this claimed feature and cites to Niemela, paragraph [0059] for support. *See, id.*

Niemela describes techniques for compensating for a Doppler shift experienced by a moving terminal in a telecommunication system. *Niemela*, Abstract. Niemela describes measuring a received uplink signal to determine a frequency change attributable to Doppler. *Id.*,

at paragraph [0065]. Niemela then describes calculating an amount of Doppler compensation. *Id.*, at paragraph [0066]. The downlink signal is compensated for the Doppler shift by shifting the frequency of the downlink signal by the compensation value. *Id.*, at paragraph [0072].

Niemela, however, fails to describe any digital processor that digitally creates a plurality of independently faded signals. The effects of multiple signal propagation paths is initially discussed at Niemela, paragraph [0039]. Niemela, at paragraph [0039] states:

[0039] In the following, the Doppler effect is explained in further detail. Whenever relative motion exists between a transmitter and a receiver, there is an apparent shift in the frequency of the received signal due to the Doppler effect. Additionally, when either the transmitter or the receiver is in motion, there is a so-called dynamic multi-path situation in which there is a continuous change in the electrical length of every propagation path and thus the relative phase shifts between them change as a function of a spatial location. The received amplitude (envelope) of the signal varies. At some positions there is constructive addition while at others there is almost complete cancellation. *In practice, there are of course several different paths which combine in different ways depending on a location. Id.*, at paragraph [0039], (*emphasis added*).

Thus, Niemela merely describes how the combination of signals traversing different propagation signal paths may be constructive or result in almost complete cancellation of the received signal.

Paragraph [0059], cited in the Office Action as teaching or suggesting this claimed feature, is reproduced below in its entirety to facilitate discussion of Niemela.

[0059] If the multi-path signals have frequencies close together, the different propagation paths within the multi-path medium have approximately the same electrical length for all components and their amplitude and phase variations are very similar. This is called flat fading. There is also frequency-selective fading where the behaviour of one frequency tends to become uncorrelated with that at the other frequency, because the phase shifts along the various paths are different at the two frequencies. *Niemela*, at paragraph [0059].

The multi-path signals described in paragraph [0059] refer to the multiple different physical signal paths traversed from a transmitter to a receiver. Each different signal path produces a different signal phase at the receiver, and the phase is also dependent on the signal frequency. It is the combination of the signals traversing the different signal paths that produce the frequency selective fading. This is merely a description of signal fading experienced by a receiver.

Thus, Niemela fails to teach or suggest “digitally creating in a digital processor a plurality of independently faded signals from the broadcast signal,” as claimed. Instead, Niemela merely describes how user terminals experience signal fading and frequency selective fading as a result of constructive or destructive signal combining at the user terminal receiver. Niemela fails to describe any digital processor that generates independently faded signals.

Thus, the combination of Niemela with Ramesh fails to teach or suggest the claimed feature of “digitally creating in a digital processor a plurality of independently faded signals from the broadcast signal.”

The Marchetto reference also fails to teach or suggest any manner of digitally generating a plurality of independently faded signals and thus, fails to cure the deficiencies in Ramesh and Niemela, whether alone or in combination. Marchetto, like Niemela, merely describes how fading adversely affects receiver performance. *See, Marchetto*, FIG. 1 and Col. 5, ll. 13-36. Therefore, the Ramesh, Niemela, and Marchetto, whether alone or in combination, fail to teach or suggest every feature of claim 1. Applicant respectfully requests reconsideration and allowance of claim 1.

Claims 13, 25, 37, 49, and 50 each include a feature similar to the feature discussed above in relation to claim 1.

In particular, **claim 13** includes the feature of “a digital processor configured to digitally create a plurality of independently faded and selectively doppler shifted signals from the broadcast signal.”

**Claim 25** includes the feature of “means for digitally creating a plurality of independently faded selectively doppler shifted signals from the broadcast signal.”

**Claim 37** includes the feature of “digitally create a plurality of independently faded signals from the broadcast signal.”

**Claim 49** includes the feature of “digitally creating in a digital processor separate from the wireless subscriber stations a plurality of independently faded and selectively doppler shifted signals from the broadcast signal.”

**Claim 50** includes the feature of “a digital processor configured to digitally create a plurality of independently faded and selectively doppler shifted signals from the broadcast signal.”

Therefore, claims 13, 25, 37, 49, and 50 are believed to be allowable at least for the reasons presented above in relation to claim 1. Applicant respectfully requests reconsideration and allowance of claims 13, 25, 37, 49, and 50.

Teaching Away From Claimed Subject Matter

**Claim 1** further features “transmitting the plurality of digitally created, independently faded, selectively doppler shifted signals from a transmitter to each of the wireless subscriber stations under test.”

Ramesh is directed to compensating for fading in AM radio signals. *Ramesh*, Title and Abstract. Niemela is directed to compensating for Doppler shift in a telecommunication system. *Niemela*, Abstract. Marchetto is directed to compensation for multi-path interference. *Marchetto*, Title and Abstract.

Each and every one of Ramesh, Niemela, and Marchetto is directed to compensating or otherwise decreasing the amount of fading or Doppler experienced by a receiver. This is in stark contrast to the claimed feature of “transmitting the plurality of digitally created, independently faded, selectively doppler shifted signals from a transmitter to each of the wireless subscriber stations under test.” Not only does Applicant’s claim feature generating independently faded selectively Doppler shifted signals, but Applicant’s claim features transmitting these signals to the subscriber stations.

None of the cited references teaches or suggests transmitting independently faded and selectively Doppler shifted signals.

Each of Ramesh, Niemela, and Marchetto expressly teach away from the claimed subject matter, and it is improper to modify the references to fundamentally change the principle of operation of the reference. The Examiner’s proposed modifications to Ramesh, Niemela, and Marchetto would render each of the references unsuitable for compensating for fading, and instead would result in a system that further complicates the fading compensation process.

**Claims 13, 25, 37, 49, and 50** each include a feature similar to the feature discussed above in relation to claim 1, and the claims are believed to be allowable over the cited references for this reason, apart from any other reason for patentability.

Applicant respectfully requests reconsideration and allowance of claims 1, 13, 25, 37, 49, and 50, because each of the references teaches away from at least one claimed feature, and

modifying the references in the manner suggested by the Examiner changes the principle of operation of the reference or renders the reference unsuitable for its intended purpose.

**Discussion of Dependent Claims**

Each of **claims 2-12, 14-24, 26-36, 38-48, and 51** depends from one of independent claims 1, 13, 25, or 37. Each of the dependent claims are believed to be allowable at least for the reason that they depend from an allowable base claim. Applicant respectfully requests reconsideration and allowance of claims 2-12, 14-24, 26-36, 38-48, and 51.

**CONCLUSION**

In the foregoing remarks, Applicant has focused on the requirements of the independent claims for purposes of conciseness. In so doing, Applicant in no way admits or acquiesces in the propriety of the Office Action in regard to the interpretation of the prior art or any of the additional limitations set forth in the various claims, including the limitations of the dependent claims.

All claims in this application are believed to be in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims.

Applicant believes that the instant response is filed within the Shortened Statutory Period for response provided in the Office Action of February 19, 2009.

If there are any other fees due in connection with the filing of the response, please charge the fees to our Deposit Account No. 17-0026. If a fee is required for an extension of time under 37 CFR 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Please charge any additional fees or credit any overpayment to deposit account number 17-0026. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

\_10 June 2009\_\_\_\_\_

By:

\_\_\_\_\_/William Marcus Hooks/\_\_\_\_\_

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